

Listing of Claims

Please replace all prior versions of claims with the following listing of claims:

1. **(Currently Amended)** A lithographic projection apparatus comprising:
a projection system configured to project a patterned beam of radiation onto a target portion of a substrate;
an alignment system;
a control system configured to generate a ~~control signal according to a~~ predicted change in a time-varying property of a part of said apparatus; **and**
a comparator configured to compare a value, based on the predicted change, to a threshold and to generate a trigger signal when the value is greater than the threshold; **and**
a threshold adjustor that is configured to adjust the threshold,
wherein said alignment system is configured to perform an alignment task in response to the trigger signal, **and**
~~wherein the threshold is adjustable.~~
2. **(Original)** The lithographic projection apparatus according to claim 1, wherein the alignment task includes obtaining a measurement of the time-varying property.
3. **(Currently Amended)** The lithographic projection apparatus according to claim 1, wherein the control system is configured to adjust the threshold according to a relation between a measurement of the time-varying property and ~~the~~ value, based on the predicted change.
4. **(Currently Amended)** The lithographic projection apparatus according to claim 3, wherein the threshold is reduced in response to a determination that a distance between ~~the~~ measurement of the time-varying property and ~~the~~ value based on the predicted change is greater than a second threshold.
5. **(Currently Amended)** The lithographic projection apparatus according to claim 3, wherein the threshold is increased in response to a determination that a distance between

~~at~~the measurement of the time-varying property and a value, based on the predicted change, is less than a second threshold.

6. *(Original)* The lithographic projection apparatus according to claim 3, wherein the control system is configured to increase the threshold by an increment, and wherein the increment is adjustable.

7. *(Currently Amended)* The lithographic projection apparatus according to claim 6, wherein the increment is reduced in response to a determination that a distance between ~~at~~the measurement of the time-varying property and ~~at~~the value, based on the predicted change, is greater than a second threshold.

8. *(Currently Amended)* The lithographic projection apparatus according to claim 6, wherein the increment is increased in response to a determination that a distance between ~~at~~the measurement of the time-varying property and ~~at~~the value, based on the predicted change, is less than a second threshold.

9. *(Currently Amended)* The lithographic projection apparatus according to claim 1, wherein, in response to the ~~control signal~~predicted change in the time-varying property, the apparatus is configured to compensate for a change in the time-varying property.

10. *(Currently Amended)* The lithographic projection apparatus according to claim 1, wherein, in response to the ~~control signal~~predicted change in the time-varying property, the apparatus is configured to adjust a position of ~~at least one among~~(1) a mask having the pattern of the patterned beam, (2) the substrate, and (3) an element of said projection system, or (4) any combination of (1) to (3).

11. *(Currently Amended)* The lithographic projection apparatus according to claim 1, wherein, in response to the ~~control signal~~predicted change in the time-varying property, the apparatus is configured to compensate for a change in the time-varying property relative to a most recent measurement of the time-varying property.

12. *(Currently Amended)* The lithographic projection apparatus according to claim 1, wherein, in response to the ~~control signal~~predicted change in the time-varying property, the apparatus is configured to compensate for a change in the time-varying property relative to a most recent performance of ~~an~~the alignment task.

13. *(Original)* The lithographic projection apparatus according to claim 1, wherein the time-varying property includes a temperature-dependent property of said projection system.

14. *(Original)* The lithographic projection apparatus according to claim 13, wherein the temperature-dependent property includes an optical property.

15. *(Original)* The lithographic projection apparatus according to claim 14, wherein the optical property includes a magnification.

16. *(Original)* The lithographic projection apparatus according to claim 1, wherein said alignment system is adapted to perform a first alignment task and a second alignment task that provides a larger number of measurements than the first alignment task, and wherein said alignment system is adapted to perform the second alignment task in response to the trigger signal.

17. *(Currently Amended)* A lithographic projection apparatus comprising:
a projection system configured to project a patterned beam of radiation onto a target portion of a substrate;
an alignment system;
a control system configured to generate a ~~control signal according to a~~predicted change in a time-varying property of a part of said apparatus; ~~and~~
a comparator configured to compare a value, based on the predicted change, to a threshold and to generate a trigger signal when the value is greater than the threshold; ~~and~~

an adjustor that is configured to determine a modified predicted change in the time-varying property, based on a measurement of the time-varying property,

wherein the alignment system is configured to perform an alignment task in response to the trigger signal, and

~~wherein the control system is configured to determine a modified predicted change in the time-varying property based on a measurement of the time-varying property.~~

18. *(Currently Amended)* The lithographic projection apparatus according to claim 17, wherein the control system is configured to store a modified value, based on the modified predicted change, and

wherein the apparatus is configured to perform an operation on a second substrate according to the modified value ~~based on the modified predicted change~~.

19. *(Currently Amended)* The lithographic projection apparatus according to claim 17, wherein the ~~control system~~adjustor is configured to determine a plurality of modified predicted changes in the time-varying property and to store a plurality of modified values, each based on a corresponding one of the modified predicted changes, and

wherein the apparatus is configured to perform an operation on a second substrate according to a selected one among the plurality of modified values.

20. *(Currently Amended)* The lithographic projection apparatus according to claim 17, wherein, in response to the ~~control signal~~predicted change in the time-varying property, the apparatus is configured to compensate for a change in the time-varying property.

21. *(Currently Amended)* The lithographic projection apparatus according to claim 17, wherein, in response to the ~~control signal~~predicted change in the time-varying property, the apparatus is configured to compensate for a change in the time-varying property relative to a most recent measurement of the time-varying property.

22. *(Original)* The lithographic projection apparatus according to claim 17, wherein said time-varying property includes a temperature-dependent property of said projection system.

23. *(Original)* The lithographic projection apparatus according to claim 22, wherein the temperature-dependent property includes an optical property.

24. *(Original)* The lithographic projection apparatus according to claim 23, wherein the optical property includes a magnification.

25. *(Original)* The lithographic projection apparatus according to claim 17, wherein said alignment system is adapted to perform a first alignment task and a second alignment task that provides a larger number of measurements than said first alignment task, and

wherein said alignment system is adapted to perform said second alignment task in response to said trigger signal.

26. *(Currently Amended)* A device manufacturing method using a lithographic projection apparatus, the method comprising:

providing a substrate that is at least partially covered by a layer of radiation-sensitive material;

using a projection system to project a patterned beam of radiation onto a target portion of the layer of radiation-sensitive material;

~~generating based on~~ a predicted change of a time-varying property of a part of said apparatus at ~~the~~ a time of a particular exposure, ~~generating a control signal;~~

~~obtaining a threshold value applying the control signal to adjust an aspect of the apparatus;~~

detecting when a value based on the predicted change exceeds ~~an~~ the adjustable threshold value; and

enabling adjustment of the threshold value; and

~~in response to said detecting~~, performing an alignment task in response to said detecting.

27. (*Original*) The device manufacturing method according to claim 26, wherein the alignment task includes obtaining a measurement of the time-varying property.

28. (*Currently Amended*) The device manufacturing method according to claim 26, ~~said method~~ further comprising adjusting the threshold value according to a relation between a measurement of the time-varying property and ~~a~~the value based on the predicted change.

29. (*Currently Amended*) The device manufacturing method according to claim 28, ~~said method~~ further comprising reducing the threshold value in response to a determination that a distance between a measurement of the time-varying property and ~~a~~the value based on the predicted change is greater than a second threshold.

30. (*Currently Amended*) The device manufacturing method according to claim 28, ~~said method~~ further comprising increasing the threshold value in response to a determination that a distance between a measurement of the time-varying property and ~~a~~the value based on the predicted change is less than a second threshold.

31. (*Currently Amended*) The device manufacturing method according to claim 28, ~~said method~~ further comprising increasing the threshold value by an increment, and wherein the increment is adjustable.

32. (*Currently Amended*) The device manufacturing method according to claim 31, ~~said method~~ further comprising reducing the increment in response to a determination that a distance between a measurement of the time-varying property and ~~a~~the value based on the predicted change is greater than a second threshold.

33. **(Currently Amended)** The device manufacturing method according to claim 31, ~~said method further comprising increasing the increment in response to a determination that a distance between a measurement of the time-varying property and at the value based on the predicted change is less than a second threshold.~~

34. **(Currently Amended)** The device manufacturing method according to claim 26, ~~said method further comprising, in response to the control signal, compensating performing the alignment task to compensate for at the change in the time-varying property relative to a most recent measurement of the time-varying property.~~

35. **(Original)** The device manufacturing method according to claim 26, wherein said time-varying property includes a temperature-dependent property of the projection system.

36. **(Original)** The device manufacturing method according to claim 35, wherein the temperature-dependent property is a magnification.

37. **(Currently Amended)** A device manufacturing method using a lithographic projection apparatus, the method comprising:

providing a substrate that is at least partially covered by a layer of radiation-sensitive material;

using a projection system to project a patterned beam of radiation onto a target portion of the layer of radiation-sensitive material;

~~generating based on~~ a predicted change of a time-varying property of a part of said apparatus at ~~the~~ a time of a particular exposure, ~~generating a control signal;~~

applying the control signal to adjusting an aspect of the apparatus based on the predicted change of the time-varying property;

obtaining a threshold value;

detecting when a value based on the predicted change exceeds ~~an adjustable~~the threshold value;

~~in response to said detecting~~, performing an alignment task in response to said detecting; and

determining a modified predicted change in the time-varying property based on a measurement of the time-varying property.

38. ***(Currently Amended)*** The device manufacturing method according to claim 37, ~~said method~~ further comprising, ~~in response to the control signal~~, compensating for a change in the time-varying property relative to a most recent measurement of the time-varying property.

39. ***(Original)*** The device manufacturing method according to claim 37, wherein said time-varying property includes a temperature-dependent property of the projection system.

40. ***(Original)*** The device manufacturing method according to claim 39, wherein the temperature-dependent property is a magnification.